



HORIZONTAL AND VERTICAL CONTROL REPORT

Gulf of Maine Survey

Sumer Hydro 2017

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Summer Hydro 2017

Project Metadata

Project name	Summer Hydro 2017
Project Number	SH2017
General Locality	Gerrish Island, Maine
State of Territory	Maine
Field Unit:	CCOM / JHC
Chief of Party:	Capt. Andrew Armstrong, Ret. NOAA; Semme Djikstra
Project start date	06/13/2017
Project End date	06/29/2017
Field Year	2017
DAPR Version	SH2017_DAPR

Position and Height Information Utilized for Project:

Horizontal Datum	World Geodetic System 1984
Realization	WGS84 (1150)
Ellipsoid	GRS 80

Final Products:

Horizontal Datum	WGS84
Projection	WGS84 UTM19N
Vertical Datum	MLLW

Horizontal and Vertical Control

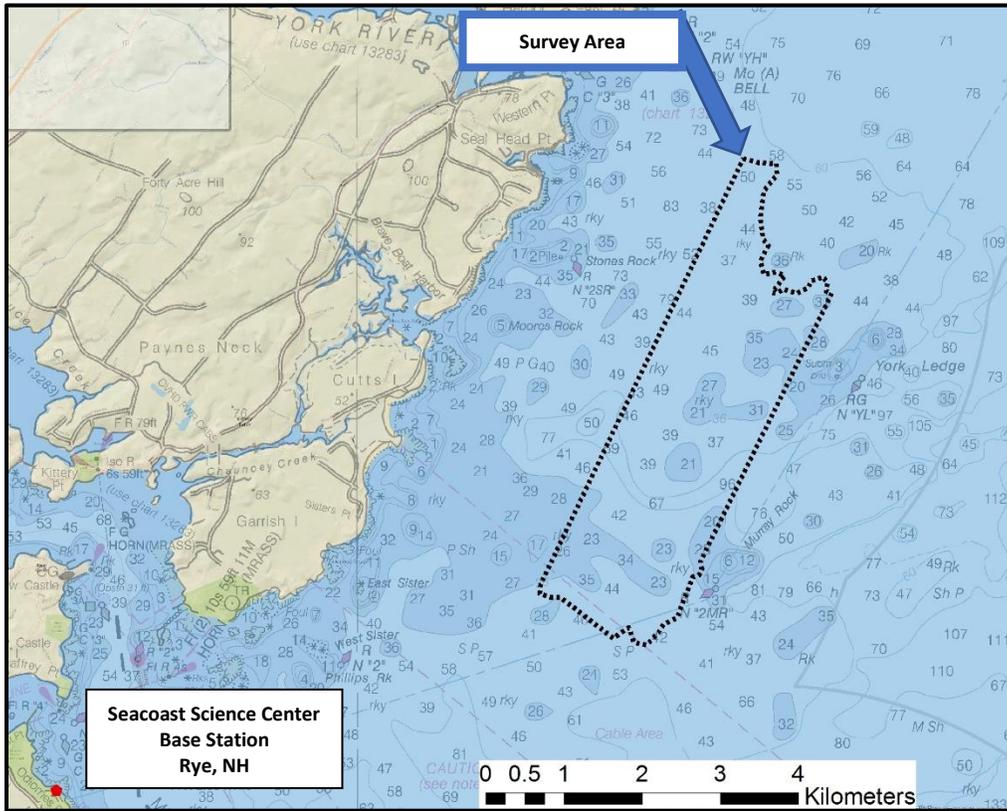


Figure 1: Horizontal and Vertical control stations

Non-User Installed Base Stations

No non-user installed gauges or sensors were utilized during survey operations.

User Installed Base Station

CORS Stations		
Station ID	Position	Ellipsoid Height
Seacoast Science Center (CREF0001)	Latitude: 43.04538°N Longitude: 70.71382°W	15.884m
Zephyr Geodetic Antenna		
Serial Number:	1284140	



Figure 2: Base station at Odiorne Park: GPS receiver



Figure 3: RTK Base Station at the Seacoast Science Center Odiorne Park, Rye, NH.

Vertical Techniques

Overview:

Data were ellipsoidally referenced using GNSS techniques and corrected with RTK corrections from the Seacoast Science Center base station located at Odiorne Park, Rye, NH during acquisition. These RTK corrections were transmitted using an UHF radio and CMR+ format. The RTK station broadcasted to RVGS via the Trimble Trimmark 3 radio modem is part of the base station at the Seacoast center with a Trimble TDL 450 L UHF modem to a Trimble 5700 GPS base station.

Motion and position data were post processed using POSPac using the University of New Hampshire (UNH) Continuously Operating Reference Station (CORS) NHUN.

The survey was referenced to WGS84 during collection. Tides model were not required, as a static offset value from VDatum was used to convert from the ellipsoid to MLLW.

Horizontal Techniques

Overview:

The same technique as for the vertical positioning was used to acquire ellipsoidal referenced longitude and latitudes during the survey.

Discussion

The latitude and longitude were referenced to the ellipsoid with the same RTK GNSS corrections as explained above in Vertical Techniques.

The Seacoast Science Center RTK Base Station was used as the primary horizontal control throughout the survey period (06/13-06/30/2017) and was ~6.6 nautical miles from the farthest point of the survey area. Horizontal and vertical accuracies broadcast from this station were on the order of ≤ 5 cm. Referencing the survey data to the ellipsoid eliminated the need for a squat model to be applied.